

**MAHOGANY (*Swietenia macrophylla*) SEED EXTRACT  
AS MOLLUSCICIDE**

5    **Technical Field of the Utility Model**

          The present utility model relates generally to a chemical spray but more particularly to a mahogany (*Swietenia macrophylla*) seed extract as molluscicide.

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**Background of the Utility Model**

          Molluscicides are chemicals used to eradicate mollusks, one of which is the Golden Apple Snail which is regarded as one of the noxious pest in irrigated lowland farms.

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          With the greater awareness of the hazards associated with the use of synthetic molluscicide to combat Golden Apple Snail, the use of a more environment friendly and sustainable approach is a must. This utility model resolve the issue of excessive use of chemicals/synthetic molluscicide to control golden apple snail which harms not just the environment but also the consumers and farmers itself.

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          The prior art with a patent number CN112335682A by Xuzhou Yinong Chemical Co Ltd of China discloses an invention relates to a Molluscicide and belongs to the technical field of pesticides which aims to provide a molluscicide which is safe and low-toxic to human beings, aquatic organisms and wild animals, has good solubility in soil, is easy to be absorbed by plants, and cannot be accumulated in a large amount in the soil to cause soil ecological problems.

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          With the bases in the prior art, it utilizes iron phosphate chelate as an active ingredient, wherein the iron phosphate chelate is formed by chelating iron phosphate and a chelating agent, and the chelating agent comprises one or a combination of more than two of L-glutamic acid-N, N-diacid tetrasodium salt, methylglycine diacetic acid and iminodisuccinic acid tetrasodium salt.

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The process of chelating iron phosphate is difficult to perform without state of the art equipment and the materials needed for its processing is not available locally.

5 The utility model utilized mahogany (*Swietenia macrophylla*) seeds which are abundant locally and can be acquired for free. Aside from materials that are locally available, the method of producing this molluscicide can be performed manually without the use of affluent equipment or machines.

10 It is therefore the main object of the present utility model is to provide a composition for molluscicide that utilizes locally available materials and are environment friendly.

More particularly, the utility model provide consumers the use of molluscicide using mahogany (*Swietenia macrophylla*) seeds which is noted to inhibit growth of pest because of its high content of saponins, flavanoids, terpenoids and alkaloids.

15 In addition, the utility model utilizes plant based extracts are non-toxic to humans and other mammals. Moreover, utilizing mahogany (*Swietenia macrophylla*) seeds prevent the further spread of mahogany (*Swietenia macrophylla*) in the country which is noted as one of the most invasive tree species.

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### **Summary of the Utility Model**

25 The present utility model discloses a composition of mahogany (*Swietenia macrophylla*) seed extract as a molluscicide, comprising powdered mahogany (*Swietenia macrophylla*) seeds and ethanol as the extracting solvent.

The technical solution involves extracting bioactive compounds from dried and powdered mahogany (*Swietenia macrophylla*) seeds using ethanol through a simple maceration process. The resulting extract exhibits molluscicidal activity due to the presence of naturally occurring saponins, 30 flavonoids, terpenoids, and alkaloids, which inhibit the growth and survival of mollusks such as the Golden Apple Snail.

Compared to prior art molluscicides, the present utility model is non-synthetic, locally producible, cost-effective, non-toxic to humans and mammals, and environmentally sustainable, making it suitable for small-scale and rural agricultural applications.

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### Detailed Description

The preparation of mahogany (*Swietenia macrophylla*) seed extract as molluscicide includes the following ingredients:

	<u>components</u>	<u>amount</u>
10	powdered mahogany ( <i>Swietenia macrophylla</i> ) seeds	200 grams
	ethanol	800 grams

The composition is needed for the following steps of producing mahogany (*Swietenia macrophylla*) seed extract as molluscicide:

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- a. Oven dry the mahogany (*Swietenia macrophylla*) seeds at 80 degrees Celsius for 12 hours;
  - b. Grind the seeds using a blender until fine in texture;
  - c. Weigh 200 grams of powdered mahogany (*Swietenia macrophylla*) seeds and on a separate container measure 800 grams ethanol and
  - 20 mix the two in a glass container;
  - d. Cover the glass container with aluminum foil and tighten the cover with rubber band;
  - e. Put the mixture into a shaker for 24 hours.
  - f. Filter the solution using a three layer cheese cloth.
  - 25 g. Allow the ethanol to volatilize for one hour and store the solution in a tightly covered glass container under room temperature away from sunlight.

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